

IN THE CLAIMS:

Claim 1 (currently amended): A device substrate suitable for use in an assay for the detection of a substance in a sample suspected of containing the same comprising:

- (a) a substrate material for supporting an indicating agent;
- (b) an indicating agent for generating a desired detectable signal in response to the presence of the substance capable of generating a detectable signal; and
- (c) a protective coating permanently affixed to the device and present during said assay and covering the indicating agent, said protective coating comprised of a protective coating forming material which is impervious to the penetration of at least one gas capable of adversely affecting the indicating agent, and which does not generate an adverse amount of undesired signals and which is, comprised principally of a protective coating forming material at least substantially transparent to any excitation wavelength necessary to excite the indicating agent and at least substantially transparent to the desired detectable signal generated by the indicating agent.

Claim 2 (canceled without prejudice).

Claim 3 (currently amended): The device substrate of claim 1 wherein the protective coating forming material comprises an acrylic polymer resin.

Claim 4 (currently amended): The device substrate of claim 2 wherein the acrylic polymer resin is a copolymer of methyl acrylate and ethyl methacrylate.

Claim 5 (currently amended): The device substrate of claim 1 comprising a hermetic seal between wherein the protective coating hermetically seals the indicating agent without producing an adverse amount of nonspecific signal generation and the substrate.

Claims 6 – 16 (canceled without prejudice).

Claim 17 (withdrawn without prejudice): A composition for forming a protective coating over the surface of an assay substrate having an indicating agent capable of generating a detectable signal associated therewith, comprising a protective coating forming material, and a delivery system for delivering the protective coating forming material in an amount sufficient to coat the surface of the assay substrate, wherein the delivery system evaporates from the surface of the assay substrate to form a protective coating at least substantially composed of the protective coating forming material that is at least substantially transparent to the detectable signal generated by the indicating agent.

Claim 18 (withdrawn without prejudice): The composition of claim 17 wherein the protective coating forming material comprises an acrylic polymer resin.

Claim 19 (withdrawn without prejudice): The composition of claim 18 wherein the acrylic polymer resin is a copolymer of methyl acrylate and ethyl methacrylate.

Claim 20 (withdrawn without prejudice): A method for forming a substantially transparent protective coating over the surface of an assay substrate having an indicating agent capable of generating a detectable signal associated therewith, said method comprising the steps of:

applying to the surface of the assay substrate an effective amount of the composition of claim 17 sufficient to form the protective coating and seal the indicating agent from the ambient atmosphere; and

drying said composition to remove the delivery system to yield the substantially transparent protective coating.

Claim 21 (withdrawn without prejudice): The method of claim 20 further comprising polishing the protective coating to enhance the transparent qualities of the protective coating.

Claim 22 (withdrawn without prejudice): The method of claim 20 wherein the applying step further comprises:

dipping the assay substrate in the composition of claim 17 for a sufficient time to allow the composition to adhere to the surface of the assay substrate; and

withdrawing the assay substrate from the composition.

Claim 23 (withdrawn without prejudice): The method of claim 22 wherein the assay substrate is dipped from about 5 seconds to 10 seconds.

Claim 24 (withdrawn without prejudice): The method of claim 20 wherein the applying step further comprises:

 pipetting the composition of claim 17 in an amount sufficient to coat the surface of the assay substrate associated with the indicating agent; and

 rocking the assay substrate from side to side for a sufficient time to evenly distribute the composition thereacross and form the protective coating.

Claim 25 (withdrawn without prejudice): The method of claim 20 wherein the applying step further comprises:

 spraying the composition of claim 17 in an amount sufficient to coat the surface of the assay substrate associated with the indicating agent; and

 rocking the assay substrate from side to side for a sufficient time to evenly distribute the composition thereacross and form the protective coating.

Claim 26 (withdrawn without prejudice): The method of claim 21 wherein the polishing step further comprises:

 preparing a polishing solution consisting of a solvent;

 suspending the assay substrate in the polishing solution for a sufficient time to remove a layer portion of the protective coating;

 withdrawing the assay substrate from the polishing solution;

shaking off any excess polishing solution from the assay substrate;
drying the assay substrate; and
if necessary, repeating the above steps.

Claim 27 (withdrawn without prejudice): The method of claim 26 wherein the solvent is selected from the group consisting of toluene, acetone and mixtures thereof.

Claim 28 (withdrawn without prejudice): The method of claim 27 wherein the solvent is a mixture containing acetone and toluene in a volumetric ratio of from about 1:2 to 1:3.

Claim 29 (new): The device of claim 1 wherein the substrate is an array substrate.

Claim 30 (new): The device of claim 1 wherein the substrate is made from a material selected from the group consisting of glass, aminosilanes, epoxies, and poly-L-lysines.

Claim 31 (new): The device of claim 1 wherein the indicating agents are selected from the group consisting of fluorescent dyes, radioisotopes, biotin, digoxigenin, visible dyes, and contrast agents.

Claim 32 (new): The device of claim 1 wherein the protective coating is impervious to ozone.

Claim 33 (new): The device of claim 29 wherein the substrate is a microarray.